

## AND BROOD- PROFITABLE RAISING.

Clemson College, S. C.—Recent letters have been received from the Poultry Division asking information relative to the use of brooders and brooders in hatching and raising chickens. The high cost of poultry foods and the great demand for fresh eggs and fries have convinced poultry raisers that it will pay to use a dependable system to obtain chicks this year.

The old sitting hen will not work when we want her to. She and her friends refuse to go broody in January and February, but they fill every available nest as soon as the weather turns warm and the time of hatching the best chickens is over.

"My hens would not sit early and I could not buy any early sitters," is heard every summer and fall by owners of little chickens.

Any one who likes poultry can operate an incubator successfully. It is necessary to turn the eggs morning and night and fill the lamp once a day. It is not necessary to examine a good machine more often than two or three times daily, when the above work can be done.

Every incubator is equipped with a thermostat to regulate the temperature.

The more popular types of kerosene lamp incubators are heated by hot air, although there are some good styles heated by the circulation of hot water. The main advantage of the hot air machine is that of durability.

The past year has found the electric incubator springing rapidly to the front. This machine can now be obtained for use on any voltage. It is also made to be used with one of the home lighting systems found on many South Carolina farms. The cost of operating an electric incubator is no greater than that of a lamp machine. The temperature can be maintained at a uniform degree and the machine can be placed in any room of the house.

It is usually found that a profitable size incubator to buy is one with a capacity of about 240 eggs. The size containing from 120 to 150 eggs is also popular with poultrymen who do not desire to raise more than 200 or 300 chickens a year. However, a large incubator when only one-half filled will give as good hatching results as a smaller machine, so that a big machine gives you an opportunity to hatch eggs for others or hatch sufficient chicks to sell the surplus to your neighbors. The best size for an electric machine is about 150 eggs. Just now these machines are rather high in price owing to little competition, but it is expected that within a short time the price of the electric will be about the same as the lamp-heated incubator.

The better types of incubators are built with double walls with one inch or more of insulating material between the walls. This prevents the temperature of the egg chamber being affected vitally by changes in the outside temperature of the room. The cheaper incubators have simply a single wall or a double wall with a piece of pasteboard between. It does not pay to buy the cheaper incubators made in this way.

Some machines have a separate compartment below the eggs into which the chicks drop as soon as they are hatched. This is a convenience, but it is of no special advantage.

The average number of chicks hatched from the eggs placed in an incubator is about one-half. When you buy an incubator it is well to order one or more portable brooders, allowing 50 chicks to each brooder. Most of the manufacturers rate the capacity of their brooders at about twice as many chicks as they will satisfactorily rear.

These portable brooders are about two feet in diameter and stand on three cast iron legs. The kerosene lamp is under one side and a woollen curtain surrounds the lower part of the brooder. The baby chicks push under this woollen curtain and the heat of the lamp keeps the inside of the brooder at the required temperature of ninety to ninety-five degrees. It is a simple matter to raise in cold weather almost all the chickens in a brooder of this kind when it is placed in a bright room. Later on in the season when the days begin to get warm, the portable brooder is preferably put in a small wire front house.

An incubator and one or more brooders will enable any one to hatch chicks when he wants them. February and March are the two best hatching months of the spring season. Pullets hatched these months will commence to lay in the early fall and continue to lay during the winter. It is easy to keep a pullet laying during the cold weather but it is difficult to start a young pullet to laying until after the colder weather is past. Then the old hens which have completed their molt begin laying. This is why it is best to hatch pullets early and have them laying when the price of eggs is so high in the fall.

Extension Bulletin 16, "Poultry Culture for South Carolina," which is mailed free to any one by the Extension Service of Clemson College, contains full directions for operating incubators and brooders. The Poultry Division will be glad to tell any one where the best makes of incubators and brooders can be obtained.

What potatoes and other starches can save wheat if you use bread or instead of bread?

## LAND SETTLEMENTS IN SOUTH CAROLINA.

Clemson College.—Secretary Houston, of the Department of Agriculture, said in an address recently delivered to a conference of editors of agricultural journals: "It would be desirable to facilitate land settlement in more systematic fashion. This has been too long left to the haphazard intervention of private enterprise, and the Nation has suffered not a little from irresponsible private direction. I think it is high time for the Federal and State governments both, as well as local communities, to seek to aid in land settlement by furnishing actual facts, reliable information, and agricultural guidance to beginning farmers and to promote well-considered settlement plans. It is particularly vital that the process of acquiring ownership of farmers be encouraged and hastened."

These views are also shared by the Department of Labor and of the Interior. Secretary Lane has associated with him, some of the best engineers who have been connected with reclamation work of various kinds. The semi-arid lands of the West, the cut-over and swamp lands of the South are being visited, that proper measures may be taken as soon as possible to render them fit for the plow, and open them for settlement.

In these days of reconstruction when industry may be disorganized by the cancellation of Government contracts for its products, and by the demobilization of large bodies both of working men and soldiers, the land beckons to the man more insistently than ever before. It will certainly be made easier for the man who wishes to own a farm to get it on reasonable terms. And these measures curbing a far worse evil. They provide the very best security against the discontent likely to arise from unemployment and a lack of food. The idle acres can give healthful and profitable employment to all who can be placed upon them; but home ownership must be the goal, and fair annual profits above a normal standard of living must be the means advanced to secure these settlers. Almost every man can find congenial employment at his home, if he owns it, or is coming the owner of it. A few acres will suffice to provide food supplies in large part, for the family, and a surplus for market. Organized methods of disposing of the surplus in any community will go far towards providing funds for the other necessities of life.

In South Carolina, there are about 19,500,000 acres. Two-thirds, or about 13,500,000 acres are in farms. One-third of the State lies absolutely idle for agricultural purposes; it consists of roads, towns and cities, and worn-out and swamp wood land. But of the 13,500,000 acres in farms, crops are grown on less than half. To be exact the crops of 1917 were grown on 6,198,000 acres. Probably at least as much more can be used for growing crops and for pastures, but let us say there yet remain only 2,000,000 acres in the State fit for farming. As 35 acres is the size of the average farm cultivated, there is room then for nearly 60,000 more farm families. What a vast amount of land settlement could be done in South Carolina; what untold wealth could be added to the property lists, if the local communities, as Secretary Houston suggests, should aid beginning farmers!

Federal and State aid in the settlement of large tracts is necessary, but nothing can be done anywhere unless the people who already own the land are willing to sell it at reasonable prices, and to welcome the new settlers.

We have perhaps the best all the year climate in the whole country, as is shown by the location of so many army camps in the South. We certainly have vacant land in great abundance. It is cheap only because of the sparsity of our population, and their use of poor agricultural methods.

It is still comparatively cheap, and at prevailing prices, is in many parts of the State, an attractive investment. But there ought to be in every community, a committee of the Chamber of Commerce, or of the Farmers Union, or of self-appointed citizens, or at the least, one or two men, whose business it is to find new settlers, to assist them in buying their farms and to make them feel at home among us.

It is not necessary to wait upon State or Federal movement. We can begin now by assisting those who have been tenants, and wish to become owners, to find good farms in our own neighborhood at reasonable prices. Certainly we can help these men to join a National Farm Loan Association, and so obtain half the purchase price of their farms at the most favorable rates. To have a share in multiplying the prosperous contented farm owners of any community is to render a very large service to the State and Nation, for upon them our civilization ultimately rests.

That large service every one of us may perform in some measure. A few of us will make some financial profit by the settlement of our idle lands, but all of us will be increasingly enriched by the fuller, healthier country life consequent upon their settlement by farm-owners.—W. H. Mills, Professor of Rural Sociology.

That a proper field crop rotation will increase your farm productivity and that your county agent will help you plan one?

## BEST VARIETIES OF COTTON FOR BOLL WEEVIL CONDITIONS.

Clemson College.—The boll weevil has made its appearance in ten counties of South Carolina. In several of these counties the weevil is numerous enough to damage the cotton crop to a considerable extent in 1919. Consequently, some changes in the method of producing cotton must be made to combat this pest.

Among these changes will be the planting of better seed of earlier fruiting varieties than are now generally used. A variety must be used that will begin to fruit early and set a good crop of bolls by the first of August, for after this time the weevils are usually abundant enough to destroy all squares that appear. It should be a good yielder with a high percentage of lint. A medium size plant is desirable. It should have but 3 or 4 vegetative branches, but fruiting branches should be numerous both sets of branches coming out near the ground.

The cost of growing an acre of cotton from the best seed is no greater than the cost of growing the same acre from inferior seed, but the difference in yield will often be from 300 to 500 pounds of seed cotton per acre in favor of the good seed. At the present price of cotton this would be at least \$30.00 per acre, not counting the seed. The above figures are conservative, for in variety tests consisting only of varieties considered standard for the State, results have been obtained showing a greater difference than above between the highest and lowest yielding varieties, though in many cases the yield of the lowest yielding variety in these tests would be greater than from "gin mixed" seed of inferior varieties commonly used by many growers. Consequently, those who use low grade seed in the weevil infested area will suffer a double loss while those who use the best varieties adapted to their sections will lose only to the extent of damage due to the weevils. That many farmers are beginning to realize this fact is indicated by the many inquiries for better varieties and sources of seed.

There is no such thing as a "boll weevil proof" cotton. Select a variety that has been tried and has proved itself adapted to the section in which it is to be grown. Then purchase seed from a good reliable breeder as near home as possible; for results show that seed ordered from a distant state where conditions are entirely different do not produce as well as native grown seed.

Early fruiting and late fruiting varieties should not be planted in the same community, as the weevils will have had time to multiply in the fruit formed on the early cotton and become numerous enough to destroy practically all fruit as fast as formed on the late variety.

During the last two years more than twenty of the best varieties have been tested in Edgefield, Aiken, Barnwell, Hampton, Beaufort, Charleston, and Dorchester Counties. From the results so far obtained and from observation as to fruiting and growth, there are several that seem to be well adapted to these sections.

Of the short staple varieties that can be recommended for South Carolina conditions, Cleveland Big Boll, Cook Dixie Triumph, and Dixie are the principal ones. The first two are well adapted for all sections of the State, except where the land is wilt-infected. Cleveland is now more generally grown in the State than any other variety. Several thousand bushels grown and bred in the State are sold every year in the weevil district further South and it is giving good results. Seed of this variety can be obtained from reliable breeders in the State, who have for several years been selecting and breeding for earliness. This is considered one of the best varieties yet developed for South Carolina conditions.

Cook ranks among the highest yielding varieties in the State, but is not as generally grown, as anthracnose or boll rot seems to be worse in this variety than any other. But several breeders have strains that are now practically free from this disease.

On wilt-infected land nothing but wilt-resistant varieties should be planted. Of these Dixie Triumph and Dixie have given best results. Dixie Triumph is a new variety developed by a prominent breeder of the State. It is early, with medium size plants, large bolls, and is a good yielder. Seed of this variety cannot be obtained for planting the coming season.

Mexican Big Boll and Sawyer are short staple varieties that are early and have yielded well in the lower counties of the State. Sawyer is a semi-cluster cotton with large bolls on medium to small plants. It sets fruit early, matures quickly, but does not rank high in yield, and sheds fruit heavily in unfavorable weather.

Webber 49 and Webber 52 are the earliest long staple varieties. Both are well adapted to the State, fruiting as early as the short staple varieties and frequently yielding as much seed cotton per acre.

In securing seed of any of the above varieties get seed that have been bred for earliness from some reliable breeder. The extension Service of Clemson College will furnish farmers with a list of the best sources of seed in the State upon application.

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